



UNITED STATES DEPARTMENT OF COMMERCE
Patent and Trademark Office

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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	Y	ATTORNEY DOCKET NO.
08/932,427	09/17/97	KITAHARA		8.1

LM02/0308

STAAS & HALSEY
700 ELEVENTH STREET NW
SUITE 500
WASHINGTON DC 20001

EXAMINER

ART. UNIT 1	PAPER NUMBER
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03/08/99

DATE MAILED:

Please find below and/or attached an Office communication concerning this application or proceeding.

Commissioner of Patents and Trademarks

Office Action Summary

Application No.

08/932,427

Applicant(s)

KITAMURA

Examiner

GARY PORTKA

Group Art Unit

2751

—The MAILING DATE of this communication appears on the cover sheet beneath the correspondence address—

Period for Response

A SHORTENED STATUTORY PERIOD FOR RESPONSE IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a response be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for response specified above is less than thirty (30) days, a response within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for response is specified above, such period shall, by default, expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to respond within the set or extended period for response will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133).

Status

- ☒ Responsive to communication(s) filed on 9/17/97.
- ☐ This action is **FINAL**.
- ☐ Since this application is in condition for allowance except for formal matters, **prosecution as to the merits is closed** in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11; 453 O.G. 213.

Disposition of Claims

- ☒ Claim(s) 1-12 is/are pending in the application.
- Of the above claim(s) _____ is/are withdrawn from consideration.
- ☐ Claim(s) _____ is/are allowed.
- ☒ Claim(s) 1-12 is/are rejected.
- ☐ Claim(s) _____ is/are objected to.
- ☐ Claim(s) _____ are subject to restriction or election requirement.

Application Papers

- ☒ See the attached Notice of Draftsperson's Patent Drawing Review, PTO-948.
- ☐ The proposed drawing correction, filed on _____ is ☐ approved ☐ disapproved.
- ☒ The drawing(s) filed on 9/17/97 is/are objected to by the Examiner.
- ☒ The specification is objected to by the Examiner.
- ☐ The oath or declaration is objected to by the Examiner.

Priority under 35 U.S.C. § 119 (a)-(d)

- ☒ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d).
- ☒ All ☐ Some* ☐ None of the CERTIFIED copies of the priority documents have been received.
- ☐ received in Application No. (Series Code/Serial Number) _____.
- ☐ received in this national stage application from the International Bureau (PCT Rule 1.7.2(a)).

*Certified copies not received: _____.

Attachment(s)

- ☐ Information Disclosure Statement(s), PTO-1449, Paper No(s). _____
- ☒ Notice of References Cited, PTO-892
- ☒ Notice of Draftsperson's Patent Drawing Review, PTO-948
- ☐ Interview Summary, PTO-413
- ☐ Notice of Informal Patent Application, PTO-152
- ☐ Other _____

Office Action Summary

Art Unit: 2751

DETAILED ACTION

1. Claims 1-12 are presented for examination.
2. The Office acknowledges Applicant's claim for priority based upon Application No. 9-004427 filed in Japan on January 14, 1997.
3. Applicant is reminded of the duty to disclose information under 37 C.F.R. 1.56.

Drawings

4. The drawings are objected to because of the following informalities:
 - a. In Figure 4 at the left side, should "DM 0" and "DM 255" be changed to show "Logical Volume" instead of "DM"? See page 10 of the specification, also Figure 3.
 - b. In Figure 6 at decision box S8, "DA" should probably be changed to "CA", see page 13 of the specification.Correction is required.
5. The drawings are objected to by the draftsman. See attached PTO-948.

Art Unit: 2751

6. Applicant is reminded of the provision of MPEP 608.02(q) and (r) regarding a separate letter to the Chief Draftsman and 608.02(v) regarding the requirement for filing red line sketches of any proposed drawing changes.

Specification

7. The title of the invention is not descriptive. A new title is required that is clearly indicative of the invention to which the claims are directed. The following title is suggested:

RAID Apparatus and Access Control Method Therefor Which Balances the Use of the Disk Units

8. The abstract of the disclosure is objected to because at line 13 (as numbered on the page) the word "designed" should be changed to --designated--. Correction is required. See MPEP § 608.01(b).

9. The disclosure is objected to because of the following informalities:

a. At page 9 line 24, change "21" to --20--.

Appropriate correction is required.

10. Applicant's cooperation is requested in correcting any errors of which applicant may become aware in the specification.

Art Unit: 2751

Claim Objections

11. The disclosure is objected to because of the following informalities:

a. In claim 1 and throughout the claims, the terms “form”, “forms”, and “forming” are objected to; Examiner does not believe it is accurate to recite that the disk units form logical volumes, rather that they store them, or perform operations on them, etc.

b. In claim 1 and 7, “a number of operations” might be interpreted as “a plurality of operations”; it is suggested to change to --a value indicating a number of operations--.

c. In claim 1 at line 11 change “designed” to --designated--.

d. In claim 3 lines 7-8, “determining a physical disk unit in accordance with said number” is objected to; this could mean finding the unit having the number, finding the unit that is within a tolerance of the number, or determining which to access by using the number.

Appropriate correction is required.

Claim Rejections - 35 USC § 112

12. The following is a quotation of the second paragraph of 35 U.S.C. 112:

The specification shall conclude with one or more claims particularly pointing out and distinctly claiming the subject matter which the applicant regards as his invention.

13. Claims 1-12 are rejected under 35 U.S.C. 112, second paragraph, as being indefinite for failing to particularly point out and distinctly claim the subject matter which applicant regards as the invention. Claims 1 and 7 both recite “same logical volumes”, then later a “designated logical

Art Unit: 2751

volume". "Same logical volumes" is not clear: this could mean all volumes are identical, that the ones recited are the same as some other unrecited volumes, that all disk units have identical volumes, etc. It is suggested to change "same" to something like --a plurality of copies of each of the-- to make it clear what applicant intends the claim to cover. It is further noted that "designated logical volumes" as recited in claim 2 makes it appear that "designating" still allows the choice of which of the "same" logical volumes; however, claim 1 may be interpreted as a single designated volume.

Claim Rejections - 35 USC § 102

14. The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless --

(e) the invention was described in a patent granted on an application for patent by another filed in the United States before the invention thereof by the applicant for patent, or on an international application by another who has fulfilled the requirements of paragraphs (1), (2), and (4) of section 371© of this title before the invention thereof by the applicant for patent.

15. Claims 1-12 are rejected under 35 U.S.C. 102(e) as being anticipated by Kakuta, U.S. Patent 5,636,356.

16. As to claims 1 and 7, Kakuta discloses a RAID apparatus and control method comprising:

Art Unit: 2751

a. Plurality of disk units (Drives 1-4) for forming same logical volumes (individually numbered data blocks #1, #2, etc.), and disk controller (2) for accessing the disk units/logical volumes (see Figures 1 and 4, and column 7 lines 20-39, column 11 lines 1-3);

b. The disk controller including a memory storing number of request operations to each disk, and control means for accessing one unit in accordance with the number of operations (see column 14 lines 35-49).

17. As to claims 2 and 8, Kakuta discloses that the numbers of operations are compared and the disk unit having the minimum number is selected (see column 14 lines 35-49; since when the count of a disk unit exceeds a threshold, another will be accessed, this may be seen as a comparison of the counts, where the disk unit with fewer counts, or not exceeding the threshold, is selected).

18. As to claims 3 and 9, Kakuta discloses channel adapter (6) as claimed (see Figure 1, and column 6 lines 36-47), device adapter (10) for accessing the disk units (see Figure 1 and column 6 lines 4-6), and resource manager circuit (DCU 7) as claimed (see column 7 lines 20-39) .

19. As to claims 4 and 10, Kakuta discloses the incrementing and decrementing number of operations of a disk unit is clearly implemented as described at column 14 lines 35-49.

Art Unit: 2751

20. As to claims 5-6 and 11-12, Kakuta discloses the memory stores status information for the disk units, for use in selecting a normal unit (see column 12 lines 39 et seq., where DCU 7 controls fault recovery, and clearly must store information indicating disk unit status to direct access to a normal disk unit).

Conclusion

21. The prior art made of record and not relied upon is considered pertinent to applicant's disclosure.

Patent No.

5,859,965	System for maintaining data consistency while minimizing invalidating write operations in a RAID.
5,819,310	System for reading mirrored logical volumes.
5,778,426	Cache system for a RAID where upper levels reducing required processing at lower levels.
5,537,567	RAID with parity blocks distributed so as to even out parity update processes.

22. A shortened statutory period for response to this action is set to expire 3 (three) months and 0 (zero) days from the mail date of this letter. Failure to respond within the period for response will result in Abandonment of the application (see 35 USC 133, MPEP 710.02, 710.02(b)).

23. **Any response to this action should be mailed to:**

Commissioner of Patents and Trademarks
Washington, D.C. 20231

or faxed to:

(703) 308-9051, (for formal communications intended for entry)

or:

Art Unit: 2751

(703) 308-5359 (for informal or draft communications, please label "PROPOSED" or "DRAFT")


Hand-delivered responses should be brought to Crystal Park II, 2121 Crystal Drive, Arlington, VA., Sixth Floor (Receptionist).

24. Any inquiry concerning this communication from the Examiner should be directed to Gary J. Portka at telephone number (703) 305-4033. The Examiner can normally be reached on weekdays from 9:00 A.M. to 5:30 P.M.

If attempts to reach the Examiner by telephone are unsuccessful, the Examiner's supervisor, Eddie Chan, can be reached on (703) 305-9712. The fax phone number for this Group is (703) 308-5359.

Any inquiry of a general nature or relating to the status of this application should be directed to the Group receptionist, whose telephone number is (703) 305-3900.

GJP
Gary J. Portka
Patent Examiner
March 4, 1999


EDDIE P. CHAN
SUPERVISORY PATENT EXAMINER